



GROUNDWATER QUALITY

BACKGROUND

The topic of groundwater quality was introduced at the November 2020 TAC meeting, as one of the Sustainability Indicators for SGMA. In the Sierra Valley basin, groundwater quality is generally good. There are a few localized areas where groundwater has exceeded regulatory thresholds (such as Maximum Contaminant Levels) or Basin Plan Water Quality objectives. Two areas of concern identified by TAC members include:

- higher levels of naturally occurring arsenic and manganese near Calpine; and
- possible impacts from septic systems

What We Know: Available Data

- The information currently available on Sierra Valley groundwater quality comes from DWR’s Groundwater Ambient Monitoring and Assessment (GAMA) program. While 206 wells have contributed data, going back as far as 1955, there are significant data gaps in terms of:
 - ** Temporal distribution of data (duration of data over years, frequency of data collection). For example, over the past 30 years, only 29 wells have twice been tested for nitrates
 - ** Spatial distribution of data (location of data points across the basin)
 - ** Basic information about well type and depth of well
- Other Monitoring Considerations:
 Various agencies at different levels (local, state, federal) have different requirements for monitoring water quality for different types of wells:
 - ** For example, wells that provide drinking water must monitor for certain compounds and those compounds cannot exceed established levels
 - ** Another example is that the Irrigated Lands Regulatory Program and the Ag Commissioners’ Office provide information on pesticide use.
 - ** Also, the state is asking for proof that septic systems do not affect water quality.

Examples of Constituents of Concern for Groundwater Quality

- Constituents of Concern (COCs) refer to those compounds or elements that can affect uses and users of groundwater – such as drinking water supplies, agricultural production, wildlife, recreation. These constituents may be naturally occurring or man-made. Examples of COCs that could be relevant to the Sierra Valley Basin include:

Arsenic *	Iron (total)
Boron *	Manganese (total)
Chloride	MTBE
Chromium	Nitrate *
Fluoride	Total Dissolved Solids (TDS)

* Stakeholder-identified priorities from survey results



Sierra Valley Groundwater Sustainability Plan Advisory Committee Summary Sheet

UNDESIRABLE RESULTS RELATING TO GROUNDWATER QUALITY

At the December 2020 TAC meeting, participants identified outcomes that they would not want to see occur within the Sierra Valley basin. It would be unacceptable to:

- violate state drinking water standards or other standards for groundwater quality
- have constituents transferred between older wells without sanitary seals
- have degraded water quality spread to other areas
- have water quality that is not suitable for agricultural uses

CREATING A MONITORING NETWORK FOR GROUNDWATER QUALITY

Consideration for establishing a monitoring network should include:

- Building on existing monitoring networks to the extent possible
- Looking at wells that have been regularly monitored in the past (and not part of GAMA)
- Addressing data gaps in spatial distribution or for specific COCs

PROPOSAL FOR GROUNDWATER QUALITY SECTION IN GSP

1. In Chapter 2, identify and discuss the following Constituents of Concern (COCs): arsenic, boron, iron, manganese, MTBE, nitrate (as nitrogen), pH, and TDS
2. Develop Sustainable Management Criteria (SMC) for COCs consistent with GSA responsibilities:
 - Nitrate as nitrogen (septic tanks, fertilizer, animal waste):
Maximum Threshold (MT) of 10 mg/L (CDPH standard); **trigger of 9 mg/L**
 - Total Dissolved Solids [TDS] (naturally occurring, septic tanks, fertilizers, wastewater)
MT of 500mg/L (US EPA secondary standard); **trigger of 210 mg/L**
3. Establish a monitoring network for:
 - Arsenic (naturally-occurring, wood preservatives, pesticides)
 - Boron (naturally-occurring, industrial waste, sewage, fertilizers)
 - Nitrate (as nitrogen)
 - pH
 - TDS

The monitoring network should include existing public supply wells, complemented by at least five (5) additional monitoring locations.

Note: It is proposed that MTBE / benzene (which is associated with contaminated sites having dedicated monitoring and cleanup) and manganese (which is naturally occurring) would not be addressed in the GSP.